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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,090	08/21/2003	Jerry Ihor Tustaniwskyi	550,692	1738

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EXAMINER	
DATSKOVSKIY, MICHAEL V	

ART UNIT	PAPER NUMBER
2835	

DATE MAILED: 10/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/647,090	TUSTANIWSKYI ET AL.	
	Examiner	Art Unit	
	Michael V. Datskovskiy	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see remarks, filed 09/19/2005, with respect to the rejection(s) of claim(s) 1-4 and 13 under 35 USC § 102 (e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the previously presented US Patent 6,889,509 by Cader et al.

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Cader et al (US Patent 6,889,509).

In regard to claim 1: Cader et al teach a system, embodiment shown in Fig. 8, for maintaining an IC–module 14 near a set-point temperature while electrical power dissipation in said IC-module 14 is varied, said system comprising: a container 60 having an open end and with seal 62 for pressing against said IC-module 14; at least one nozzle in said container 60 for spaying a liquid coolant (water, see col. 2, lines 44-45) on said IC-module 14 when said seal 62 is pressed against said IC-module 14; and a pressure reducing means 66, coupled to said container 60, for producing a sub-atmospheric pressure between said container and said IC-module when said seal is pressed against said IC-module. In regard to claims 2-4: Cader et al teach furthermore,

that their invention has an ability to rapid evaporate liquid coolant (see col. 2, lines 52-64), which inherently include lowering its boiling point by at least 10° C from its boiling point at atmospheric pressure. Cader et al also teach a circulation subsystem coupled to said nozzle.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cader et al.

Cader et al teach all the limitations of the claim except said IC-module is enclosed by a cover enclosing an IC-chip and said seal is pressed against said cover of said IC-module. It would have been obvious to one ordinary skilled in the art at the time invention was made to use a system for maintaining an IC–module near a set-point temperature described by Cader et al for testing an IC-module either having a cover or without a cover, having an exposed IC-chip, since applicant has not disclosed that a type of the IC-module (covered or not) solves any stated problem or is for any particular purpose ant it appears that the invention by Cader et al (as well as the proposed invention) would perform equally well with any kind of an IC-module being tested.

6. Claims 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over embodiment shown by Cader et al in Fig. 8 further in view of embodiment shown by Cader et al in Fig. 9 and further in view of Patel et al (US Patent 6,550,263).
In the embodiment shown in Fig. 8 Cader et al teach one nozzle (instead of multiple nozzles claimed in claims 5-11). In the embodiment shown in Fig. 9 Cader et al teach a similar cooling system 60 but comprising a plurality of nozzles 75. (Although examiner thinks that one nozzle in Fig. 8 as well as a plurality of nozzles in Fig. 9 are shown sketchy, without defining specific quantity of said nozzles). However, it would have been obvious to one ordinary skilled in the art at the time invention was made to employ multiple nozzles as it is shown by Cader et al in Fig. 9 in the embodiment shown by Cader et al in Fig. 8, in order to enhance dissipation of heat. In Figs. 8 and 9 Cader et al teach all the limitations of the claims except said system includes an incremental droplets control system (described in the specification of the instant application as used for ink-jets control in printers), wherein said control system including a close d-loop control means for receiving a sensor signal about a temperature of said IC-module and sending a control signal based on said IC-module temperature to all or a specific quantity of said spray nozzles (claims 5-6) allowing said spray nozzles to eject a single droplet (claim 5), or multiple nozzles to eject simultaneously with a frequency increasing corresponding to increase of said temperature (claims 7, 11). Cader et al also no not teach each nozzle ejecting droplets by squeezing a coolant with a piezoelectric device (claim 8) or by heating said coolant with an electric heater (claim 9). Patel et al teach a spray cooling system for IC-modules comprising: an incremental droplets control system

(described in the specification as used for ink-jets control in printers. (See Abstract), said control system including a close d-loop control means for receiving a sensor signal about a temperature of said IC-module and sending a control signal (col. 5, lines 37-44) based on said IC-module temperature (col. 6, lines 54-61) to all or a specific quantity from just one (col. 6, lines 34-35) to all of said spray nozzles (Coil. 6, lines 35-38) allowing said spray nozzles to eject a single droplet or multiple nozzles to eject simultaneously with a frequency increasing corresponding to increase of said temperature and vaporize all of the cooling fluid (col. 5, lines 30-35). Patel et al also teach each nozzle ejecting droplets by squeezing a coolant with a piezoelectric device or by heating said coolant with an electric heater (col. 6, lines 42-54). It would have been obvious to one ordinary skilled in the art at the time invention was made to use a system for maintaining an IC–module near a set-point temperature described by Patel et al in the device by Cader et al in order to make said cooling system more accurate, reliable and cost-efficient.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Datskovskiy whose telephone number is (571) 272-2040. The examiner can normally be reached on 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael V Datskovskiy
Primary Examiner
Art Unit 2835

10/21/2005